



State of Ohio Environmental Protection Agency

RE: FINAL PERMIT TO INSTALL CERTIFIED MAIL
FRANKLIN COUNTY

Street Address:

122 S. Front Street

Lazarus Gov. Center TELE: (614) 644-3020 FAX: (614) 644-2329

Mailing Address:

Lazarus Gov. Center
P.O. Box 1049

Application No: 01-08087

DATE: 1/25/2001

GFS Chemicals Inc
Dave Gannon
851 McKinley Ave
Columbus, OH 43222

Enclosed please find an Ohio EPA Permit to Install which will allow you to install the described source(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, I urge you to read it carefully.

The Ohio EPA is urging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Pollution Prevention at (614) 644-3469.

You are hereby notified that this action by the Director is final and may be appealed to the Ohio Environmental Review Appeals Commission pursuant to Chapter 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed within thirty (30) days after the notice of the Directors action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
236 East Town Street, Room 300
Columbus, Ohio 43215

Very truly yours,

Thomas G. Rigo, Manager
Field Operations and Permit Section
Division of Air Pollution Control

CC: USEPA

CDO



Permit To Install

STATE OF OHIO ENVIRONMENTAL PROTECTION AGENCY

FINAL PERMIT TO INSTALL 01-08087

Application Number: 01-08087
APS Premise Number: 0125040109
Permit Fee: **\$800**
Name of Facility: GFS Chemicals Inc
Person to Contact: Dave Gannon
Address: 851 McKinley Ave
Columbus, OH 43222

Location of proposed air contaminant source(s) [emissions unit(s)]:
777 River Street
Columbus, Ohio

Description of proposed emissions unit(s):
1,000 gallon glass/steel reactors used for manufacturing perchloric acid.

The above named entity is hereby granted a Permit to Install for the above described emissions unit(s) pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the above described emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency



Director

Part I - GENERAL TERMS AND CONDITIONS

A. Permit to Install General Terms and Conditions

1. Compliance Requirements

The emissions unit(s) identified in this Permit to Install shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.

2. Reporting Requirements Related to Monitoring and Recordkeeping Requirements

The permittee shall submit required reports in the following manner:

- a. Reports of any required monitoring and/or recordkeeping information shall be submitted to the appropriate Ohio EPA District Office or local air agency.
- b. Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the appropriate Ohio EPA District Office or local air agency. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

3. Records Retention Requirements

Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to, all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.

4. Inspections and Information Requests

The Director of the Ohio EPA, or an authorized representative of the Director, may, subject to the safety requirements of the permittee and without undue delay, enter upon the premises of this source at any reasonable time for purposes of making inspections, conducting tests, examining records or reports pertaining to any emission of air contaminants, and determining compliance with any applicable State air pollution laws and regulations and the terms and conditions of this permit. The permittee shall furnish to the Director of the Ohio EPA, or an authorized

representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying, reopening or revoking this permit or to determine compliance with this permit. Upon verbal or written request, the permittee shall also furnish to the Director of the Ohio EPA, or an authorized representative of the Director, copies of records required to be kept by this permit.

5. Scheduled Maintenance/Malfunction Reporting

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction of any emissions units or any associated air pollution control system(s) shall be reported to the appropriate Ohio EPA District Office or local air agency in accordance with paragraph (B) of OAC rule 3745-15-06. Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emissions unit(s) that is (are) served by such control system(s).

6. Permit Transfers

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The appropriate Ohio EPA District Office or local air agency must be notified in writing of any transfer of this permit.

7. Air Pollution Nuisance

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

8. Termination of Permit to Install

This Permit to Install shall terminate within eighteen months of the effective date of the Permit to Install if the owner or operator has not undertaken a continuing program of installation or modification or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation or modification. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.

9. Construction of New Sources(s)

The proposed emissions unit(s) shall be constructed in strict accordance with the plans and application submitted for this permit to the Director of the Ohio Environmental Protection Agency. There may be no deviation from the approved plans without the express, written approval of the Agency. Any deviations from the approved plans or the above conditions may lead to such sanctions and penalties as provided under Ohio law. Approval of these plans does not constitute an assurance that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio

Environmental Protection Agency if the proposed sources are inadequate or cannot meet applicable standards.

If the construction of the proposed emissions unit(s) has already begun or has been completed prior to the date the Director of the Environmental Protection Agency approves the permit application and plans, the approval does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the approved plans. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of the Permit to Install does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Approval of the plans in any case is not to be construed as an approval of the facility as constructed and/or completed. Moreover, issuance of the Permit to Install is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities prove to be inadequate or cannot meet applicable standards.

10. Public Disclosure

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.

11. Applicability

This Permit to Install is applicable only to the emissions unit(s) identified in the Permit to Install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s).

12. Best Available Technology

As specified in OAC Rule 3745-31-05, all new sources must employ Best Available Technology (BAT). Compliance with the terms and conditions of this permit will fulfill this requirement.

13. Source Operation and Operating Permit Requirements After Completion of Construction

This facility is permitted to operate each source described by this Permit to Install for a period of up to one year from the date the source commenced operation. This permission to operate is granted only if the facility complies with all requirements contained in this permit and all applicable air pollution laws, regulations, and policies. Pursuant to OAC Chapter 3745-35, the permittee shall submit a complete operating permit application within thirty (30) days after commencing operation of the emissions unit(s) covered by this permit.

GFS Chemicals Inc
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 Issued: 1/25/2001

Facility ID: 0125040109

14. Construction Compliance Certification

The applicant shall provide Ohio EPA with a written certification (see enclosed form) that the facility has been constructed in accordance with the Permit to Install application and the terms and conditions of the Permit to Install. The certification shall be provided to Ohio EPA upon completion of construction but prior to startup of the source.

15. Fees

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable Permit to Install fees within 30 days after the issuance of this Permit to Install.

B. Permit to Install Summary of Allowable Emissions

The following information summarizes the total allowable emissions, by pollutant, based on the individual allowable emissions of each air contaminant source identified in this permit.

SUMMARY (for informational purposes only)
TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS

<u>Pollutant</u>	<u>Tons Per Year</u>
NOx	9.8
HCL	1.6
Chlorine	1.44

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

- 1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P007 -1,000 gallon glass/steel reactor for manufacturing perchloric acid equipped with a scrubber and condenser for controlling chlorine and hydrochloric acid emissions.	OAC rule 3745-31-05(A)(3)	<p>Chlorine emissions shall not exceed 1.0 lb per hour. See A.2.a. below.</p> <p>Hydrochloric acid emissions shall not exceed 2.6 lbs per hour. See A.2.a. below.</p> <p>Nitrogen oxide emissions shall not exceed 14.1 lbs per hour. See A.2.a. below.</p>

2. Additional Terms and Conditions

- 2.a The chlorine emissions from P007 shall not exceed 4.3 pounds per batch and 0.72 ton per year. Hydrochloric acid emissions from P007 shall not exceed 5.0 pounds per batch and 0.8 ton per year. Nitrogen oxide emissions from P007 shall not exceed 29 pounds per batch and 4.9 tons per year. The ton per year emissions are based on a maximum allowable annual production rate of 336 batches per year.
- 2.b The capture efficiency of the scrubber and condenser controlling chlorine and hydrochloric acid emissions from P007 shall be 100 % by weight and the control efficiency of the scrubber shall be at least 98% by weight.
- 2.c The emission limitations from this emissions unit are based on the calculated potential emissions being vented through the above referenced control equipment. The operational

Emissions Unit ID: P007

restrictions, monitoring, record keeping , reporting and emissions testing requirements associated with the control equipment are necessary to ensure compliance with these emission limitations.

B. Operational Restrictions

1. The maximum annual production rate for P007 shall not exceed 336 batches per year.
2. The scrubber water flow rate shall be continuously maintained at a value of not less than 25 gallons per minute at all times while P007 is in operation.
3. The pH of the scrubbing liquid shall be continuously maintained in the range of 8 to 12.5.
4. The minimum stack height for emissions unit P007 shall be at least 35 feet above the ground.
5. The minimum air flow rate through the stack shall be at least 3000 actual cubic feet per minute during the reaction stage.
6. Emissions units P007 and P008 shall never be operated in the reaction stage simultaneously.
7. The condenser water flow rate shall be continuously maintained at a value of not less than 2 gallons per minute at all times while P007 is in operation.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the number of batches produced each month.
2. The permittee shall properly install, operate and maintain equipment to sustain water flow in the scrubber at a rate greater than or equal to 25 gallons per minute (gpm). Monitoring equipment shall be interlocked with the reactor such that if flow is less than 25 gpm the heat source of the reactor will shut down, thus causing the reaction to terminate. Water flow in the scrubber may be monitored by tracking flow and/or pressure, whichever is deemed most technically feasible. The permittee shall collect and record the water flow in the scrubber , once per shift while the reactor is in use.
3. The permittee shall properly install, operate and maintain equipment to sustain water flow in the condenser at a rate greater than or equal to 2 gpm. Monitoring equipment shall be interlocked with the reactor such that if water flow in the condenser is less than 2 gpm the heat source of the reactor will shut down, thus causing the reaction to terminate. Water flow in the condenser may be monitored by tracking flow and/or pressure, whichever is deemed most technically feasible. The permittee shall collect and record the water flow in the condenser, once per shift while the

reactor is in use.

4. The permittee shall properly install, operate and maintain equipment to continuously monitor the pH of the scrubbing liquid. The permittee shall collect and record the pH of the scrubbing liquid, once per shift while the reactor is in use.
5. The permittee shall properly install, operate and maintain equipment to sustain airflow in the scrubber exhaust duct during the reaction stage. Airflow monitoring equipment shall be interlocked with the reactor such that if airflow is less than 3,000 acfm in the scrubber exhaust duct the heat source of the reactor will shut down, thus causing the reaction to terminate.
6. The permittee shall operate and maintain a continuous temperature monitor which measures the temperature of the exhaust gases passing from the condenser to the scrubber. The temperature monitoring device shall be interlocked with the reactor such that if the gas stream passing from the condenser to the scrubber exceeds 135 degree Fahrenheit, the heat source of the reactor will shut down, thus causing the reaction to terminate. The permittee shall collect and record the temperature of the exhaust gases passing from the condenser to the scrubber, in degrees Fahrenheit, once per shift while the reactor is in use.
7. The permittee shall collect and record the following information each day:
 - a. Each shutdown of the reactor due to the temperature of gas stream passing from the condenser to the scrubber exceeding 135 degree Fahrenheit.
 - b. Each shutdown of the reactor due to the airflow in the scrubber exhaust falling below 3,000 acfm.
 - c. Each shutdown of the reactor due to the pH of the scrubbing liquid falling outside the range of 8 to 12.
 - d. Each shutdown of the reactor due to flow in the condenser at a rate falling below 2 gpm.
8. The permittee shall monitor and log the reaction date and time of each reaction stage in emissions units P007 and P008.
9. The permit to install for this emissions unit (P007) was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The

Emissions Unit ID: P007

predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: Chlorine

TLV (ug/m3): 1,500

Maximum Hourly Emission Rate (lbs/hr): 1.0

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 35.6

MAGLC (ug/m3): 35.7

Pollutant: Hydrochloric Acid

TLV (ug/m3): 5,495

Maximum Hourly Emission Rate (lbs/hr): 2.6

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 92.67

MAGLC (ug/m3): 130.87

Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be still satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

- a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

D. Reporting Requirements

1. The permittee shall submit deviation(excursion) reports that identify all periods of time during which this emissions unit was shut down due to the following:

- a. The scrubber water flow rate not being maintained within the required range.
- b. The pH of the scrubbing liquid not being maintained within the required range.
- c. The condenser water flow rate not being maintained within the required range.
- d. The airflow in the scrubber exhaust falling below 3,000 acfm .
- e. Emissions units P007 and P008 being operated at the same time.

2. The permittee shall submit annual reports which specify the total chlorine, hydrochloric acid and nitrogen oxides emissions from P007 for the previous calendar year in tons per year. These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Compliance with the emission limitation(s) in Section A.I of these terms and conditions shall be determined in accordance with the following method(s):

- a. Emission Limitation-

Chlorine emissions shall not exceed 1.0 pound per hour and 4.3 pounds per batch.

Hydrochloric acid emissions shall not exceed 2.6 pounds per hour and 5.0 pounds per batch.

Nitrogen oxide emissions shall not exceed 14.1 pounds per hour and 29 pounds per batch.

Applicable Compliance Method-

The permittee shall conduct, or have conducted, emission testing for P007 in accordance with the following requirements:

- i. The emission testing shall be conducted within 60 days after achieving the maximum production rate but no later than 180 days after initial startup of the emissions unit.
- ii. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rates for chlorine, hydrochloric acid, and nitrogen oxides.
- iii. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s):
for chlorine, Method 26A of 40 CFR Part 60, Appendix A,
for hydrochloric acid, Method 26A of 40 CFR Part 60, Appendix A, and for NO_x,
Method 7E of 40 CFR Part 60, Appendix A.,
Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
- iv. The test(s) shall be conducted while P007 is operating at or near its maximum capacity, unless otherwise specified or approved by the Ohio EPA Central District Office.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air

agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Central District Office's refusal to accept the results of the emission test(s).

Personnel from the Ohio EPA Central District Office shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA central District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA Central District Office.

b. Emission Limitation-

Chlorine emissions shall not exceed 0.72 ton per year.

Applicable Compliance Method-

Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year (from record keeping requirements in section C.1.) with the chlorine emissions in pounds/batch obtained from the most recent stack test.

c. Emission Limitation-

Hydrochloric acid emissions shall not exceed 0.8 ton per year.

Emissions Unit ID: **P007****Applicable Compliance Method-**

Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year (from record keeping requirements in section C.1.) with the hydrochloric acid emissions in pounds/batch obtained from the most recent stack test.

d. Emission Limitation-

Nitrogen oxide emissions shall not exceed 4.9 tons per year.

Applicable Compliance Method-

Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year (from record keeping requirements in section C.1.) with the nitrogen oxide emissions in pounds/batch obtained from the most recent stack test.

e. Emission Limitation-

The control efficiency of the scrubber controlling chlorine and hydrochloric acid emissions from emissions unit P007 shall be at least 98%, by weight.

Applicable Compliance Method: Manufacturer's data submitted as part of the PTI application shall be used to demonstrate compliance with this control efficiency requirement.

F. Miscellaneous Requirements

none

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P008 -1,000 gallon glass/steel reactor for manufacturing perchloric acid equipped with a scrubber and condenser for controlling chlorine and hydrochloric acid emissions.	OAC rule 3745-31-05(A)(3)	Chlorine emissions shall not exceed 1.0 lb per hour. See A.2.a. below. Hydrochloric acid emissions shall not exceed 2.6 lbs per hour. See A.2.a. below. Nitrogen oxide emissions shall not exceed 14.1 lbs per hour. See A.2.a. below.

2. Additional Terms and Conditions

- 2.a The chlorine emissions from P008 shall not exceed 4.3 pounds per batch and 0.72 ton per year. Hydrochloric acid emissions from P008 shall not exceed 5.0 pounds per batch and 0.8 ton per year. Nitrogen oxide emissions from P008 shall not exceed 29 pounds per batch and 4.9 tons per year. The ton per year emissions are based on a maximum allowable annual production rate of 336 batches per year.
- 2.b The capture efficiency of the scrubber and condenser controlling chlorine and hydrochloric acid emissions from P008 shall be 100 % by weight and the control efficiency of the scrubber shall be at least 98% by weight.
- 2.c The emission limitations from this emissions unit are based on the calculated potential

GFS Chemicals Inc
PTI Application: 01 00007
Issued

Facility ID: 0125040109

Emissions Unit ID: **P008**

emissions being vented through the above referenced control equipment. The operational restrictions, monitoring, record keeping, reporting and emissions testing requirements associated with the control equipment are necessary to ensure compliance with these emission limitations.

B. Operational Restrictions

1. The maximum annual production rate for P008 shall not exceed 336 batches per year.
2. The scrubber water flow rate shall be continuously maintained at a value of not less than 25 gallons per minute at all times while P008 is in operation.
3. The pH of the scrubbing liquid shall be continuously maintained in the range of 8 to 12.5.
4. The minimum stack height for emissions unit P008 shall be at least 35 feet above the ground.
5. The minimum air flow rate through the stack shall be at least 3000 actual cubic feet per minute during the reaction stage.
6. Emissions units P007 and P008 shall never be operated in the reaction stage simultaneously.
7. The condenser water flow rate shall be continuously maintained at a value of not less than 2 gallons per minute at all times while P007 is in operation.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the number of batches produced each month.
2. The permittee shall properly install, operate and maintain equipment to sustain water flow in the scrubber at a rate greater than or equal to 25 gallons per minute (gpm). Monitoring equipment shall be interlocked with the reactor such that if flow is less than 25 gpm the heat source of the reactor will shut down, thus causing the reaction to terminate. Water flow in the scrubber may be monitored by tracking flow and/or pressure, whichever is deemed most technically feasible. The permittee shall collect and record the water flow in the scrubber , once per shift while the reactor is in use.
3. The permittee shall properly install, operate and maintain equipment to sustain water flow in the condenser at a rate greater than or equal to 2 gpm. Monitoring equipment shall be interlocked with the reactor such that if water flow in the condenser is less than 2 gpm the heat source of the reactor will shut down, thus causing the reaction to terminate. Water flow in the condenser may be monitored by tracking flow and/or pressure, whichever is deemed most technically feasible. The permittee shall collect and record the water flow in the condenser, once per shift while the reactor is in use.

4. The permittee shall properly install, operate and maintain equipment to continuously monitor the pH of the scrubbing liquid. The permittee shall collect and record the pH of the scrubbing liquid, once per shift while the reactor is in use.
5. The permittee shall properly install, operate and maintain equipment to sustain airflow in the scrubber exhaust duct during the reaction stage. Airflow monitoring equipment shall be interlocked with the reactor such that if airflow is less than 3,000 acfm in the scrubber exhaust duct the heat source of the reactor will shut down, thus causing the reaction to terminate.
6. The permittee shall operate and maintain a continuous temperature monitor which measures the temperature of the exhaust gases passing from the condenser to the scrubber. The temperature monitoring device shall be interlocked with the reactor such that if the gas stream passing from the condenser to the scrubber exceeds 135 degree Fahrenheit, the heat source of the reactor will shut down, thus causing the reaction to terminate. The permittee shall collect and record the temperature of the exhaust gases passing from the condenser to the scrubber, in degrees Fahrenheit, once per shift while the reactor is in use.
7. The permittee shall collect and record the following information each day:
 - a. Each shutdown of the reactor due to the temperature of gas stream passing from the condenser to the scrubber exceeding 135 degree Fahrenheit.
 - b. Each shutdown of the reactor due to the airflow in the scrubber exhaust falling below 3,000 acfm.
 - c. Each shutdown of the reactor due to the pH of the scrubbing liquid falling outside the range of 8 to 12.
 - d. Each shutdown of the reactor due to flow in the condenser at a rate falling below 2 gpm.
8. The permittee shall monitor and log the reaction date and time of each reaction stage in emissions units P007 and P008.
9. The permit to install for this emissions unit (P008) was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level

Concentration (MAGLC). The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: Chlorine

TLV (ug/m3): 1,500

Maximum Hourly Emission Rate (lbs/hr): 1.0

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 35.6

MAGLC (ug/m3): 35.7

Pollutant: Hydrochloric Acid

TLV (ug/m3): 5,495

Maximum Hourly Emission Rate (lbs/hr): 2.6

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 92.67

MAGLC (ug/m3): 130.87

Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be still satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

- a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

D. Reporting Requirements

1. The permittee shall submit deviation(excursion) reports that identify all periods of time during which this emissions unit was shut down due to the following:
 - a. The scrubber water flow rate not being maintained within the required range.
 - b. The pH of the scrubbing liquid not being maintained within the required range.
 - c. The condenser water flow rate not being maintained within the required range.
 - d. The airflow in the scrubber exhaust falling below 3,000 acfm .
 - e. Emissions units P007 and P008 being operated at the same time.
2. The permittee shall submit annual reports which specify the total chlorine, hydrochloric acid and nitrogen oxides emissions from P008 for the previous calendar year in tons per year. These

reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Compliance with the emission limitation(s) in Section A.I of these terms and conditions shall be determined in accordance with the following method(s):

- a. Emission Limitation-

Chlorine emissions shall not exceed 1.0 pound per hour and 4.3 pounds per batch.

Hydrochloric acid emissions shall not exceed 2.6 pounds per hour and 5.0 pounds per batch.

Nitrogen oxide emissions shall not exceed 14.1 pounds per hour and 29 pounds per batch.

- a. Applicable Compliance Method-

The permittee shall conduct, or have conducted, emission testing for P008 in accordance with the following requirements:

- i. The emission testing shall be conducted within 60 days after achieving the maximum production rate but no later than 180 days after initial startup of the emissions unit.
- ii. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rates for chlorine, hydrochloric acid, and nitrogen oxides.
- iii. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s):
for chlorine, Method 26A of 40 CFR Part 60, Appendix A,
for hydrochloric acid, Method 26A of 40 CFR Part 60, Appendix A, and for NO_x,
Method 7E of 40 CFR Part 60, Appendix A.,
Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
- iv. The test(s) shall be conducted while P008 is operating at or near its maximum capacity, unless otherwise specified or approved by the Ohio EPA Central District Office.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an

"Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Central District Office's refusal to accept the results of the emission test(s).

Personnel from the Ohio EPA Central District Office shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA central District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA Central District Office.

b. Emission Limitation-

Chlorine emissions shall not exceed 0.72 ton per year.

Applicable Compliance Method-

Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year (from record keeping requirements in section C.1.) with the chlorine emissions in pounds/batch obtained from the most recent stack test.

c. Emission Limitation-

Hydrochloric acid emissions shall not exceed 0.8 ton per year.

Applicable Compliance Method-

Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year (from record keeping requirements in section C.1.) with the hydrochloric acid emissions in pounds/batch obtained from the most recent stack test.

d. Emission Limitation-

Nitrogen oxide emissions shall not exceed 4.9 tons per year.

Applicable Compliance Method-

Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year (from record keeping requirements in section C.1.) with the nitrogen oxide emissions in pounds/batch obtained from the most recent stack test.

e. Emission Limitation-

The control efficiency of the scrubber controlling chlorine and hydrochloric acid emissions from emissions unit P008 shall be at least 98%, by weight.

Applicable Compliance Method: Manufacturer's data submitted as part of the PTI application shall be used to demonstrate compliance with this control efficiency requirement.

F. Miscellaneous Requirements

none

NEW SOURCE REVIEW FORM B

PTI Number: 01-08087

Facility ID: 0125040109

FACILITY NAME GFS Chemicals Inc

FACILITY DESCRIPTION 1.000 gallon glass/steel reactors used for CITY/TWP Columbus

Emissions Unit ID: **P008**

SIC CODE 2819

SCC CODE 3-01-999-99

EMISSIONS UNIT ID P007

EMISSIONS UNIT DESCRIPTION 1000 gallon reactor used for manufacturing perchloric acid

DATE INSTALLED 9/96

EMISSIONS: (Click on bubble help for Air Quality Descriptions)

Pollutants	Air Quality Description	Actual Emissions Rate		PTI Allowable	
		Short Term Rate	Tons Per Year	Short Term Rate	Tons Per Year
Particulate Matter					
PM ₁₀					
Sulfur Dioxide					
Organic Compounds					
Nitrogen Oxides	attainment	14.1	4.9	14.1	4.9
Carbon Monoxide					
Lead					
Other: Air Toxics	Chlorine/HCL	1.0/2.6	0.72/0.8	1.0/2.6	0.72/0.8

APPLICABLE FEDERAL RULES:

NSPS?

NESHAP?

PSD?

OFFSET POLICY?

WHAT IS THE BAT DETERMINATION, AND WHAT IS THE BASIS FOR THE DETERMINATION?

Enter Determination Compliance with the permitted emission limits and applicable rules; Use of a scrubber w/98% control efficiency. OAC 3745-31-05

IS THIS SOURCE SUBJECT TO THE AIR TOXICS POLICY? yesOPTIONAL: WHAT IS THE CAPITAL COST OF CONTROL EQUIPMENT? \$ 50,000**TOXIC AIR CONTAMINANTS**

Ohio EPA's air toxics policy applies to contaminants for which the American Conference of Governmental Industrial Hygienists (ACGIH) has a listed threshold limit value.

AIR TOXICS MODELING PERFORMED*? X YES NOIDENTIFY THE AIR CONTAMINANTS: Chlorine and HCL

25 NEW SOURCE REVIEW FORM B

PTI Number: 01-08087

Facility ID: 0125040109

FACILITY NAME GFS Chemicals Inc

FACILITY DESCRIPTION 1.000 gallon glass/steel reactors used for CITY/TWP Columbus

Emissions Unit ID: **P008**

SIC CODE 2819

SCC CODE 3-01-999-99

EMISSIONS UNIT ID P008

EMISSIONS UNIT DESCRIPTION 1000 gallon glass reactor used for manufacturing perchloric acid

DATE INSTALLED 9/96

EMISSIONS: (Click on bubble help for Air Quality Descriptions)

Pollutants	Air Quality Description	Actual Emissions Rate		PTI Allowable	
		Short Term Rate	Tons Per Year	Short Term Rate	Tons Per Year
Particulate Matter					
PM ₁₀					
Sulfur Dioxide					
Organic Compounds					
Nitrogen Oxides	attainment	14.1	4.9	14.1	4.9
Carbon Monoxide					
Lead					
Other: Air Toxics	Chlorine/HCL	1.0/2.6	0.72/0.8	1.0/0.8	0.72/0.8

APPLICABLE FEDERAL RULES:

NSPS?

NESHAP?

PSD?

OFFSET POLICY?

WHAT IS THE BAT DETERMINATION, AND WHAT IS THE BASIS FOR THE DETERMINATION?

Enter Determination Compliance with the permitted emission limits and applicable rules; Use of a scrubber w/98% control efficiency.
OAC 3745-31-05

IS THIS SOURCE SUBJECT TO THE AIR TOXICS POLICY? yesOPTIONAL: WHAT IS THE CAPITAL COST OF CONTROL EQUIPMENT? \$ 50,000**TOXIC AIR CONTAMINANTS**

Ohio EPA's air toxics policy applies to contaminants for which the American Conference of Governmental Industrial Hygienists (ACGIH) has a listed threshold limit value.

AIR TOXICS MODELING PERFORMED*? X YES NOIDENTIFY THE AIR CONTAMINANTS: Chlorine and HCL

NEW SOURCE REVIEW FORM B

PTI Number: 01-08087

Facility ID: 0125040109

FACILITY NAME GFS Chemicals Inc

FACILITY DESCRIPTION 1.000 gallon glass/steel reactors used for CITY/TWP Columbus

Emissions Unit ID: P008

Ohio EPA Permit to Install Information Form Please describe below any documentation which is being submitted with this recommendation (must be sent the same day). Electronic items should be submitted with the e-mail transmitting the PTI terms, and in software that CO can utilize. If mailing any hard copy, this section must be printed as a cover page. All items must be clearly labeled indicating the PTI name and number. Submit **hard copy items to Pam McGraner, AQM&P, DAPC, Central Office, and electronic files to airpti@epa.state.oh.us**

Please fill out the following. If the checkbox does not work, replace it with an 'X'

	<u>Electronic</u>	<u>Additional information File Name Convention (your PTI # plus this letter)</u>	<u>Hard Copy</u>	<u>None</u>
<u>Calculations (required)</u>	<input type="checkbox"/>	000000c.wpd	<input checked="" type="checkbox"/>	
<u>Modeling form/results</u>	<input type="checkbox"/>	000000s.wpd	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>PTI Application (complete or partial)*</u>	<input type="checkbox"/>	000000a.wpd	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>BAT Study</u>	<input type="checkbox"/>	000000b.wpd	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>Other/misc.</u>	<input type="checkbox"/>	000000t.wpd	<input type="checkbox"/>	<input checked="" type="checkbox"/>

* Mandatory for netting, PSD, nonattainment NSR, 112(g), 21-07(G)(9)(g) and 21-09(U)(2)(f) - 2 complete copies.

Please complete (see comment bubble to the left for additional instructions):

NSR Discussion

A. Source Description

GFS Chemicals Inc has submitted a PTI application for the proposed installation of two acid reactors. This facility is not a major facility for PSD applicability purposes and is located in Franklin County, which is attainment for all criteria pollutants. GFS is not a Title V facility.

B. Facility Emissions and Attainment Status

The proposed emissions unit is subject to OAC rule 3745-31-05 and as such the allowable emission rates are based upon BAT. BAT for this emissions unit includes the use of a scrubber with a minimum control efficiency of 98% for the chlorine and HCL emissions . The permit contains parametric monitoring, recordkeeping and reporting to ensure compliance with the permitted emission limits. The proposed emission limits are less than 250 tons per year. Therefore , PSD does not apply.

C. Source Emissions

The potential emissions from the proposed installation are below those levels which would trigger PSD requirements. Compliance with the proposed emission limits will be verified either through emissions testing or calculations. See the attached calculations for an explanation of how the proposed emission limits were derived. Modeling was performed to demonstrate this emission units compliance with the Ohio EPA Air Toxics Policy.

2 NEW SOURCE REVIEW FORM B

PTI Number: 01-08087

Facility ID: 0125040109

FACILITY NAME GFS Chemicals Inc

FACILITY DESCRIPTION 1.000 gallon glass/steel reactors used for CITY/TWP Columbus

Emissions Unit ID: **P008**

Please call me if you have any questions(728-3813).

D. Conclusion

This source has a process weight of less than a 1000 pounds per hour. These emission units were installed prior to receiving a PTI. Given the fact that this facility operates in SIC codes 2819 and 2869, the fee for each emissions unit is two times the normal fee of \$ 200. Therefore , the total fee for the PTI is \$ 800.

Please complete for these type permits (For PSD/NSR Permit, place mouse over this text):

Synthetic Minor Determination and/or Netting Determination
Permit To Install ENTER PTI NUMBER HERE

A. Source Description**B. Facility Emissions and Attainment Status****C. Source Emissions****D. Conclusion**

PLEASE PROVIDE ADDITIONAL NOTES OR COMMENTS AS NECESSARY:

NONE

Please complete:

SUMMARY (for informational purposes only)
TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS

<u>Pollutant</u>	<u>Tons Per Year</u>
<u>NOx</u>	<u>9.8</u>
<u>HCL</u>	<u>1.6</u>
<u>Chlorine</u>	<u>1.44</u>